

fine silky hairs. The corolla is relatively small, only slightly exceeding the calyx-lobes. It grows on gravelly rises, flowering in mid-September.

Gastrolobium spinosum Benth. var.
grandiflorum C. A. Gardn. var. nov.

Ramis glabris, glaucis; foliis orbiculari-reniformibus, spinoso-mucronatis, integerrimis, glaucis; racemis terminalibus, densifloris, calyces amplius glabriusculi, labio superiore lato et breviter bifido; ovario longe stipitato, dense villosa.

Frutex 30 cm. altus, ramis patentibus; stipulae setaceae subspinescentes, demum patentes. Folia circ. 1.5 cm. longa, 2 cm. lata. Racemi 1.5-2 cm. longi; bracteae lanceolatae acuminatae, 5 mm. longae. Calyx 1 cm. longus, laxus, late campanulatus, lobis inferioribus ovatis obtusis, labio superiore lato bifido.

Hab. in distr. Irwin inferiore prope Latham, in arenosis apertis, fl. m. Oct. Gardner sine no. (1934).

This variety appears to be the most toxic of all the varieties of *G. spinosum*. It has accounted for heavy losses in stock, especially sheep, in the Latham and Dalwallinu districts. It grows on open sand plain country, and is a low shrub with widely spreading, almost horizontal branches and large orange-red blossoms. The leaf is almost kidney-shaped or broadly heart-shaped, and deeply indented at the base. Pale green in colour, it is not very thick, but is rigid and the apex is somewhat abruptly narrowed into a slender but rigid spine. The flowers are almost twice the size of those of the other forms and varieties of prickly poison. It has been received also from near Mingenew, and from between Mollerin and Beacon, as well as from Kalannie.

NESTING SEASONS OF WESTERN AUSTRALIAN BIRDS—A FURTHER CONTRIBUTION

By A. H. ROBINSON, Coolup.

In the previous issue of this journal (p. 149) I. C. Carnaby has analysed his records since 1926 of the nesting of Western Australian birds. I have maintained comparable records during the same periods and over similar areas. In view of the interest now being shown in the incidence of breeding seasons and the factors controlling them I feel it an opportune time to publish a series of my records showing how closely they conform to Carnaby's data.

In 1921 and 1922 my records for Claremont, near Perth (Lat. 32° S.) were made over an area bounded by Cottesloe, Claremont, Floreat Park, Herdsman's Lake, Scarborough and the ocean. For the most part this area was in its natural state. The present-day settlements of Graylands, Floreat Park and City Beach were unknown and Herdsman's Lake was in the process of being drained. There was only one house at Perry's Lakes (now portion of Floreat Park), a relic of the days when the lime kilns were

worked. This was inhabited and some of the area round the lakes was used for grazing cattle. The reed-beds in the lakes were not extensive and water-fowl did not nest in any numbers.

Butler's Swamp (Claremont) at this time was noted for its bird life. It had extensive reed-beds and the paper-barks were still alive (cf. W.A. *Naturalist*, vol. 2, 1950, p. 152) and afforded nesting sites for many birds which did not breed in the reed-beds. Included among these was the Restless Flycatcher.

The records made in 1921 and 1922 were mostly confined to weekends and school holidays. At this time the only Magpie Larks in this area were at Herdsman's Lake and there were many other breeding species within this area which are not recorded on my 1921-22 lists. Black-faced Wood-Swallows bred on the Seaview Golf Links at Cottesloe and from there back to the sanitary depot at North Cottesloe. The Australian Bittern was still breeding in Butler's Swamp.

Between 1923 and 1934 I was in the North-West. From 1923 to 1927 I made records at The Peake Station (Wyloo) (Lat. 23° S.) and from 1927 intermittent records on Ullawarra, near the same latitude. In 1933 and 1934 these records were made more comprehensive.

In setting out these records I have followed Carnaby's method for easier comparison with his paper. The map included by him is also applicable to this paper.

It will be noted that in North Western Australia, where the rainfall is very indefinite and mostly confined to the monsoonal season, many species have two breeding seasons. They nest as a result of the monsoonal rains in the summer and if the season is favourable with winter rains they nest again in the spring (August-September). But there is a decided dropping off in the number of breeding birds during mid-winter (May, June and July). This could be caused by the fact that the gonads need a certain period of recuperation or regeneration between each breeding cycle and the low temperatures of winter are unpropitious.

Magpie Larks and Yellow-tailed Thornbills have been known to start building in May at Coolup in the South-west, but did not continue and the nests remained unattended until August. The cause of this temporary break-down on nesting operations appears to have been the cold wet conditions of mid-winter. It is possible, of course, that the spring breeding in the North-west of those species which have a double breeding season is confined to individuals which were unsuccessful with their summer broods but we also have the fact that over a period of years odd records of many species may be obtained in mid-winter, particularly among seed-eating birds.

TABLE 1 — NESTING RECORDS FROM CLAREMONT, 1921

Yellow-tailed Thornbill	July 16; Aug. 23, 25.
Western Yellow Robin	July 31; August 25.
Scarlet Robin	Aug. 7, 8.
Western Silver-eye	Aug. 5.
Western Shrike-Thrush	Aug. 17.
Gilbert Whistler (?)	Aug. 20.
Little Wattle-bird	Aug. 20.
Red Wattle-bird	Aug. 20, 21.
Welcome Swallow	Aug. 21.
Golden Bronze Cuckoo	Aug. 23, 25.
Spinebill	Aug. 23.
Black Duck	Aug. 25.
Grey Butcher-bird	Aug. 26.
Singing Honeyeater	Aug. 29.
Willie Wagtail	Sept. 4; Dec. 14.
Western Magpie	Sept. 7.
Brown Honeyeater	Sept. 7.
Western Warbler	Sept. 10.
Rufous Whistler	Sept. 10, 19.
New Holland Honeyeater	Sept. 10, 13.
Raven	Sept. 18.
Reed Warbler	Oct. 10.
Swamphen	Oct. 29.
Grey Teal	Nov. 5.
Whistling Eagle	Nov. 5.
Red-tipped Diamond Bird	Nov. 5; Dec. 11.
Red-capped Dotterel	Nov. 12.
Sacred Kingfisher	Nov. 12.
Bee-eater	Nov. 16.
Little Bittern	Nov. 19.
Tree-Martin	Dec. 11.

TABLE 2 — NESTING RECORDS FROM CLAREMONT, 1922

Western Yellow Robin	July 23.
Whistling Eagle	July 23.
Yellow-tailed Thornbill	July 29; Aug. 5, 13, 20, 25, 25, 25, 28; Sept. 15, 22.
Scarlet Robin	Aug. 5, 6, 13.
Little Wattle-bird	Aug. 5, 19.
New Holland Honeyeater	Aug. 12, 28.
Raven	Aug. 19, 19.
Singing Honeyeater	Aug. 19, 19; Sept. 15.
Narrow-billed Bronze Cuckoo	Aug. 20, 25; Sept. 15, 22; Nov. 20.
Welcome Swallow	Aug. 23, 30.
Brown Honeyeater	Aug. 28.
Western Silver-eye	Aug. 28, 28; Sept. 15, 18, 23, 23.
Mountain Duck	Aug. 31.
Western Magpie	Sept. 9.
Tawny Frogmouth	Sept. 14.
Willie Wagtail	Sept. 15, 30; Nov. 11, 11, 12, 13, 18.
Pallid Cuckoo	Sept. 15.
Spinebill	Sept. 18.
Kookaourra	Sept. 23.
Splendid Blue Wren	Sept. 23.
Grey Butcher-bird	Sept. 23.
Restless Flycatcher	Nov. 11.
Sacred Kingfisher	Nov. 12, 19.
Little Grass-bird	Nov. 18.
Reed Warbler	Nov. 18.
Swamphen	Nov. 12, 18, 18.
Western Warbler	Nov. 18.
Bee-eater	Nov. 21; Dec. 21, 21.

As a preliminary to Table 3 the following general remarks may be made concerning the season and the breeding behaviour of the birds. During February and March, 1933, there was a fall of 10 inches of rain, and abundant feed was available to stock by the end of March. On April 2 Budgerygahs were looking for nesting sites. On April 9 migrating flocks of White-fronted Honeyeaters were noted feeding on the flowers of the mistletoe and wax-bush, and odd birds remained until early August. Banded Plovers were commonly seen since the first rains. In early August Masked Wood-Swallows were breaking up flocks preparatory to nesting, which was first noted on September 9. On August 24 at the bower of a Spotted Bower-bird green pods and berries were being placed. On September 11 Bee-eaters were tunnelling.

The records between September 23 and October 30 were made on a trip from Ullawarra to Onslow down the Ashburton River.

TABLE 3 — NESTING RECORDS FROM ULLAWARRA
STATION, 1933 *

Magpie Lark	March . . . : April (young); Sept. . . . 28; Dec. 15.
Owlet Nightjar	March 8 (young); April 8, 23; Aug. 9.
Crested Bell-bird	March 13, 13, 21; April 8, 24, 27; Aug. 11; Sept. 4, 4, 8, 18.
Redthroat	March 16; July 28.
Variegated Wren	March 19, 19.
Rufous Song-Lark	March 19, 23.
Yellow-throated Miner	March 20; April 23; May 31; Aug. 7; Sept. 13.
White-plumed Honeyeater	March 20; April 2; Sept. 30.
Wedgebill	March 20, 21, 21, 21, 23, 31, 31, 31, 31.
Black-faced Wood-Swallow	March 20, 21, 22; April 19; Sept. 13, 18, 23; Nov. 15 (young); Dec. 16.
Crimson Chat	March 26; April 19, 21, 24; Sept. 9, 9.
Australian Pipit	March 26; April 22; Aug. 9, 15; Sept. 8, 13, 16.
Brown Song-Lark	March 23; April 4, 18.
Crested Pigeon	March 28, April 23, 24; Aug. 3; Nov. 16.
Brown Honeyeater	March 28.
Little Quail	March 29; April 4, 4.
Rufous Whistler	March 30; April 26; Aug. 24.
Western Shrike-Thrush	March 30; April 2, 4.
White-winged Triller	March 31; Sept. 27, 28.
White-winged Wren	March 31.
Weero (Cockatiel)	April 2, 4.
Spiny-cheeked Honeyeater	April 4, 4, 19, 23, 29, 31; Sept. 11.
White-browed Babbler	April 7, 12, 12, 26.
Zebra Finch	April 19, 23, 23, 26, 27, 27, 27.
Painted Finch	April 19; Sept. 27.
Australian Dotterel	April 19.
Diamond Dove	April 22.
Ground Cuckoo-Shrike	April 23.
Little Crow	April 24, 24; Aug. 4.
Budgerygah	April 23; June 4 (young); Sept. 10.
Star Finch	April 27.
Red-browed Pardalote	April 27, 27; Sept. 4, 20.
Peaceful Dove	April 28.
Black-faced Cuckoo-Shrike	April 28; Aug. 9, 24; Sept. 10.
Cinnamon Quail-Thrush	May 21.
Emu	June 9.
Australian Crow	June 25; July 2, 28.

Tree-Martin	May . . . ; April . . . ; Aug. 24; Sept. 4, 4, 4, 4, 10, 10.
Black-backed Magpie	June 29; Aug. 9; Sept. 7, 12, 15, 16, 17, 18; Nov. 15 (young).
Red-capped Robin	July (young); Sept. 4.
White-faced Heron	July 28.
Black-eared Cuckoo	July 28.
Galah	Aug. 3, 9.
Twenty-eight Parrot	Aug. 3, 9.
Singing Honeyeater	Aug. 3, 9, 11; Sept. 6, 18; Nov. 1.
Grey Butcher-bird	Aug. 4, 4, 9, 11, 15, 15.
Red-plumed Pigeon	Aug. 7; Nov. 1.
Hooded Robin	Aug. 9.
Pied Butcher-bird	Aug. 9, 15, 24; Sept. 4, 7.
Kestrel	Aug. 9, 31; Sept. 20, 30.
Bustard	Aug. 15.
Red-backed Kingfisher	Aug. 24; Sept. 20.
Little Corella	Sept. 4.
Narrow-billed Bronze Cuckoo	Sept. 4.
Mistletoe Bird	Sept. 4.
Masked Wood-Swallow	Sept. 9 . . . , 18 . . . , 25.
Grey-crowned Babbler	Sept. 10.
Bee-eater	Sept. 11.
Black-capped Sittella	Sept. 11, 18, 23; Nov. 1.
Tawny Frogmouth	Sept. 12.
Wedge-tailed Eagle	Sept. 14 (fully fledged young in nest).
Brown Thornbill	Sept. 19, 19, 20.
Southern Stone-Curlew	Sept. 20.
Blue-winged Kookaburra	Sept. 24, 29.
Little Falcon	Sept. 30.
Whistling Eagle	Oct. 1.
Little Pied Cormorant	Oct. 2 (young).

* The symbol (...) in Tables 3 and 4 indicate that several nests were found in the period mentioned but not particularised.

In connection with Table 4, dealing principally with the year 1934, the following information may be given. The season's rain began on December 7, 1933, when 52 points fell, five inches being recorded up to February 10. As at Landor Station, where Carnaby made his observations at the same period, it was a good season, though there was no winter rain.

The first birds to respond to the rain were Black-faced Wood-Swallows and Magpie Larks, which were found nesting on December 15, 1933. On December 24 Red-capped Robins were singing before sun-rise. On January 20 a few White-winged Trillers, flying about in gum trees heavy with blossom, kept up an incessant whistling. The Pallid Cuckoo was singing. Odd Banded Plover had arrived the previous week. By this date Magpie Larks were nesting freely, and by mid-February White-winged Trillers and Wedgebills were also generally nesting. On February 19 the first flocks of Ground Cuckoo-Shrikes were seen. Towards the end of February Emus were very plentiful on the plains in flocks of up to 50 individuals, some with small broods. These must have migrated from elsewhere. On March 19 Red-breasted Babbblers were lining nests and on March 23 Brown Honeyeaters were heard singing. On April 1 Song-Larks were recorded as being much more plentiful than hitherto and singing all day long.

I was absent from the area between September-November 8.

TABLE 4 — NESTING RECORDS FROM ULLAWARRA
STATION, 1934.

Magpie Lark	Dec. 15...; Jan. 14...; 25, 27; March 24 (young); Aug. 31.
Black-faced Wood-Swallow	Dec. 16; Jan. 14; Feb. 10, 25.
Willie Wagtail	Jan. 19.
White-plumed Honeyeater	Jan. 19; Feb. 8, 16, 16; March 24; Aug. 11.
Black-faced Cuckoo-Shrike	Jan. 19, 29; Feb. 26; March 22; April 1.
Singing Honeyeater	Jan. 19, 20; Feb. 12; March 1, 4, 23, 24.
Crested Bell-bird	Jan. 20; Feb. 4; March 23; April 18.
Western Shrike-Thrush	Feb. 4.
Rufous Whistler	Feb. 5, 10.
Wedgebill	Feb. 8, 8, 8, 16...; March 14, 23, 24; April 8, 18; Aug. 11, 14.
Crested Pigeon	Feb. 10; April 1.
White-winged Triller	Feb. 10...
Owlet Nightjar	Feb. 12.
Banded Plover	Feb. 12.
Common Bronzewing	Feb. 15; March 23.
Peaceful Dove	Feb. 16.
Spiny-checked Honeyeater	Feb. 16...; March 22.
Crimson Chat	Feb. 15.
Ground Cuckoo-Shrike	Feb. 25.
Little Crow	March 10, 12, 14, 14, 20, 23.
Grey-crowned Babbler	March 11, 22, 31; April 1, 12, 20; May 8, 13; Aug. 4, 4, 4; Sept. 4.
Yellow-throated Miner	March 14, 17; Aug. 15, 31.
Painted Finch	March 12.
Western Bower-bird	March 12 (two fledglings just left nest).
Hooded Robin	March 12.
Bustard	March 12.
Australian Pipit	March 14; April 23.
Zebra Finch	March 17.
Black-eapped Sittella	March 24; April 21.
Tree-Martin	April 12; May 13, 13, 13.
Diamond Dove	April 23, 23, 25; Aug. 13, 14.
White-backed Swallow	April 23, 23.
Cinnamon Quail-Thrush	May 2.
Emu	May 3.
Australian Crow	July 8; Dec. (young).
Grey Butcher-bird	Aug. 13.
Twenty-eight Parrot	Aug. 5.
White-faced Heron	Aug. 31.
Bee-eater	Aug. 31; Dec. (young).
Blue-winged Kookaburra	Dec. (two eggs).

FROM FIELD AND STUDY

Record of the Silver-grey Petrel from Rottnest.—Together with D. Gillies and E. Lindgren, we found a beach-drifted petrel of grey and white plumage; about half a mile east of Green Island, on the southern shore of Rottnest Island, in December 1954. The specimen had dried out to a mummy and had evidently come ashore during the preceding winter. The colouration (white head, whitish bill, grey back, black wing quills, white tail and under parts) and measurements (culmen, 41 mm., tarsus, 53 mm.) led us to believe the bird was a Silver-grey Petrel or Southern Fulmar (*Fulmarus antarcticus*), which identification was verified by Dr. D. L. Serventy who examined some of the remains. This is the second record for the State and the sixth for Australia.

—E. McCrum, Bassendean; and P. SLATER, Claremont.